ACCESSION #: 9705230332
NON-PUBLIC?: N

LICENSEE EVENT REPORT (LER)

FACILITY NAME: ZION STATION UNIT 1 PAGE: 1 OF 3

DOCKET NUMBER: 05000295

TITLE: Reactor Trip Due to Equipment Failure

EVENT DATE: 03/16/96 LER #: 96-010-01 REPORT DATE: 05/19/97

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 020

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Neil M. Brennan, Root Cause TELEPHONE: (847) 746-2084
ext. 2380

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: FW COMPONENT: XCV MANUFACTURER: F130
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On March 16, 1996, Unit 1 was returning to service. At approximately 20% reactor power, Steam Generator (S/G) feedwater (FW) control was being transferred from the FW Bypass Regulating Valves to the Main FW Regulating valves. After the transfer, 1C S/G level continued to increase despite efforts to close the 1C Main FW Regulating valve (1LCV-FW520). The reactor subsequently tripped on 1C S/G Level High High although closed valve indication was observed prior to reaching 70% level.

The cause of this event was a new but defective pneumatic volume booster on the valve. The booster spring seat was found to be stuck in a position that would prevent the venting function.

Corrective actions include response time testing the Unit 2 Main FW Regulating valves and conducting a bench test break in period on similar components prior to issuing them

for use.

The safety significance of this event is minimal.

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A. PLANT CONDITIONS PRIOR TO EVENT

Unit 1 MODE 1 - Power Operations Rx Power 20%

RCS [AB] Temperature/Pressure 550 Degrees F/2235 psig

B. DESCRIPTION OF EVENT

On March 16, 1996, Unit 1 was returning to service. The unit was placed on line at approximately 2215 hrs. At approximately 20% power, Nuclear Station Operator (NSO) began transferring Steam Generator [SB] (S/G) feedwater [SJ] (FW) control from the FW Bypass Regulating Valves to the Main FW regulating valves. The NSO reported that the 1C (1LCV-FW520) and the 1D (1LCV-FW530) Main FW Regulating valves appeared to be sluggish but responding sufficiently to allow the transfer to continue. After the transfer, the NSO began to experience difficulty in controlling the 1C S/G level. 1C S/G level continued to increase despite the NSO's efforts to close the 1C Main FW Regulating valve (1 LCV-FW520). The NSO observed closed valve indication prior to reaching 70% level at which time the reactor tripped on 1C S/G Level High High (2256) water level. Emergency Procedure E-0, "Reactor Trip or Safety Injection," was entered and the unit stabilized.

C. CAUSE OF EVENT

The cause of this event was a defective pneumatic volume booster on the valve. The booster spring seat was found to be stuck in a position that would prevent the venting function. This would cause a slow responding valve. The 1C Main FW Regulating valve was tested. It took approximately 3 minutes for the 1C Main FW Regulating to begin to respond to a change in demand. Typical response time is expected to be 3 to 10 seconds.

The spring seat surface finish was found to have a roughness average value of 125 micro-inches. This finish was verified to be the specification finish per Fisher Control. Fisher also specifies

lubrication of the spring seat. The failed component, which was new and had been installed prior to the startup, was found with the proper surface finish and lubricated. Bench testing was able to duplicate the failed condition several times. However, after some "break in" time, the valve performed properly on subsequent tests. Therefore, though the valve was within the manufacturer's tolerances, the cause of the sticking appears to be related to the need to exercise the components to remove any final surface irregularities.

D. SAFETY ANALYSIS

This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv) which requires a 30-day written report when any event or condition resulted in a manual or automatic actuation of any engineered safety feature.

S/G high high level is intended to provide protection against S/G overfill and the potential for moisture carry over to the main turbine. In this event, the high high level on 1C S/G was reached due to a failure of the pneumatic volume booster on the 1C Main FW Regulating Valve (1LCV-FW520). The unit responded as expected with a turbine trip and reactor trip. Therefore, this event had no impact on the health and safety of the public.

E. CORRECTIVE ACTIONS

1. The pneumatic volume booster for the 1C Main FW Regulating valve was replaced.

2. All four Unit 1 Main FW Regulating valves were response time tested.

3. The Unit 2 Main FW Regulating valves will be response time tested at the next opportunity. (295-180-96-013-01)

4. Material Management placed the spare volume boosters on hold until bench testing is conducted.

5. Volume booster installation practices will include a bench testing break-in period prior to issuing the component for-use. (295-180-96-013-03).

F. PREVIOUS EVENTS SEARCH AND ANALYSIS

No previous events were identified from the results of a search of Zion's Nuclear Tracking System database.

G. COMPONENT FAILURE DATA

Manufacturer Nomenclature Model
Fisher Controls Volume Booster Type 2625

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Commonwealth Edison Company
Zion Generating Station
101 Shiloh Boulevard
Zion, IL 600088-2797 ComEd
Tel 847-746-2084

May 19, 1997

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

The enclosed Supplemental License Event Report number 96-010-01, Docket No. 50-295/DPR 39 from Zion Generating Station is being transmitted to update both the cause of the event and the corrective action to prevent recurrence of the event.

Very truly yours,

R. Starkey
Station Manager
Zion Generating Station

RS/NB/js

Enclosure: Licensee Event Report

cc: NRC Region III Administrator
NRC Resident Inspector
IDNS Resident Inspector
INPO Record Center
Illinois Department of Nuclear Safety

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